



AIRS Science Operations Readiness
at the
GSFC's Earth Sciences (GES)
Distributed Active Archive Center (DAAC)

<http://daac.gsfc.nasa.gov>

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Agenda

- AIRS Mission Overview at the DAAC
- DAAC Readiness/Overview
- Staffing and Training
- Science Software Integration and Test
- Documentation
- Logistics/Security
- Archive Management
- Unique Extensions
- Status Summary
- Issues, Concerns and Work-off Plans



Overview of GDAAC Mission Requirements for AIRS

- **Mission Critical** (Needed to Calibrate Instruments; Launch +1 Year)

- Ingest and Archive**

- 180 Aqua AIRS L0 Production Data Sets (~14 GB/Day)
 - 13 Aqua Orbit and Attitude Files (<1 GB/Day MODIS and AIRS Combined)
 - 0-2 Aqua AIRS Expedited Data Sets (<4 GB/Day)

- Production**

- 13 Aqua DPREP O/A Runs (<1 GB/Day)
 - 3840 Aqua AIRS Level 1 Output Products (~56 GB/Day)

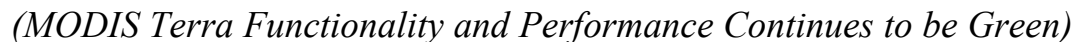
- Distribution**

- Aqua AIRS L0 to AIRS TLSCF
 - Aqua AIRS L1 to AIRS TLSCF for Instrument Calibration and QA
 - Aqua AIRS EDS to JPL for Cal/Val



Overview of GDAAC Mission Requirements for AIRS

- **Mission Essential** (in addition to Mission Critical)
 - **Ingest and Archive**
 - NOAA Ancillary Data Sets for AIRS (<3 GB/Day)
 - **Production**
 - 1200 AIRS Level 2 Output Products (~10 GB/Day)
 - 8 AIRS Summary Browse Products (<1 GB/Day)
 - **Distribution**
 - Aqua AIRS data to users via FTP and 8mm Tape
 - 10% of Aqua AIRS L2+ Product Volume to AIRS SCF for QA
 - **QA**
 - Update Science QA Flag on Aqua AIRS Products
 - **Fault Recovery**
 - From Extended EDOS, FDD, or “Larry” Server Outage
 - From Ingest and Distribution of Bad Data
 - From Data Corruption within the Archive

GSFC DAAC -5



Aqua AIRS Science Team
14 February 2002



Goddard DAAC Readiness/Operability

- Hardware Status
 - SWGD and Data Pool Hardware has Arrived at the GDAAC.
 - Integration and Activation of Newly Installed Hardware commenced; Anticipate this Work to be Completed NLT March '02
 - Hardware Upgrades/Expansions Include:
 - AIRS Capacity Upgrades
 - Data Pool
- AIRS Processing Capacity (Ramps up to ~66 GB/day)
 - Currently: SPG07: SGI Challenge XL with 24 Processors, 6 dedicated to AIRS
 - Within 6 months: SPG11: SGI Origin 3000 with 32 processors, 20 dedicated to AIRS
 - This exceeds AIRS processing requirements, consistent with processing ramp up
- Custom Code Status
 - Current Ops Version is Drop 6A.04 (Plus TEs)
 - Launch Ready
 - Anticipate Drop 6A.05 to be installed in the OPS mode mid-March '02
 - When Custom Code Version is Upgraded, i.e., Drop 6A.05, then Readiness Status will Revert to Not Tested Until Re-Testing is Complete



Aqua Position Staff Levels

Position		Present	3/24/02 (Launch)	4/10/02 (First Data)	7/1/02 (First Release)
Project Mgmt and Admin		2.0	2.0	2.0	2.0
Operations	Production Supervisor	1.0	1.0	1.0	1.0
	Production Planner	1.0	1.0	1.0	1.0
	Resource Planner	1.0	1.0	1.0	1.0
	Resource Controller	5.0	5.0	5.0	5.0
	Production Monitor	5.0	5.0	5.0	5.0
	Ingest Tech	4.5	4.5	4.5	4.5
	Distribution Tech	5.5	5.5	5.5	5.5
Engineering	Engineering Supervisor	1.0	1.0	1.0	1.0
	System Engineer	6.0	6.0	6.0	6.0
	SW Maintenance	4.0	4.0	4.0	4.0
	Test Engineer	3.0	3.0	3.0	3.0
	System Administrator	5.0	5.0	5.0	5.0
	Archive Controller	1.0	2.0	2.0	2.0
	ILS/Maintenance Coordinator	1.0	1.0	1.0	1.0
	DataBase Administrator	3.0	3.0	3.0	3.0
CM	CM Administrator	2.5	2.5	2.5	2.5
SSI&T	Sci SW I&T Engineer	4.0	4.0	4.0	4.0
User	Science Data Specialist	9.0	9.0	9.0	9.0
Services	User Services Rep	3.0	3.0	3.0	3.0
Total Goddard ECS DAAC Staff		67.5	68.5	68.5	68.5
Operations Coverage: 4 Week Rotating Schedule; 7 Day Week; 12 Hour Shifts (Days/Mids); 4 Teams					



Aqua Training and Certification

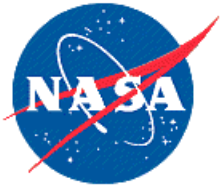
GSFC		Certification					
	Position	Vendor Training	EEES Training	Skills	Current	3/24/02 (Launch)	First Data 4/10/02 AIRS 4/10/02 MODIS
Production Apps	Production Planner	N/A	100%	20	90%	100%	100%
	Resource Planner	N/A	100%	14	100%	100%	100%
	Resource Controller	N/A	100%	22	100%	100%	100%
	Production Monitor	N/A	100%	29	90%	100%	100%
	Ingest Tech	N/A	100%	29	90%	100%	100%
	Distribution Tech	N/A	100%	20	90%	100%	100%
Engineering Engineering	Systems Engineer	100%	N/A	N/A	100%	100%	100%
	Systems Administrator	100%	N/A	N/A	100%	100%	100%
	S/W Maintainer	100%	N/A	N/A	100%	100%	100%
	Database Administrator	100%	N/A	N/A	100%	100%	100%
	Archive Controller	100%	100%	N/A	100%	100%	100%
	ILS/Maintenance Coordinator	100%	N/A	N/A	100%	100%	100%
CM	CM Administrator	100%	100%	N/A	100%	100%	100%
Science	SSI&T Engineer	N/A	100%	N/A	100%	100%	100%
	Science Data Specialist	N/A	100%	N/A	100%	100%	100%
	User Services Rep	N/A	100%	17	100%	100%	100%



Science Software Status and Plans

- Status of At-launch AIRS PGEs (Mission Critical)

Aqua AIRS PGE	Description	Current Version	Delivery Date	Launch Version	Anticipated Delivery Date	Comment
AiL1A_AIRS	AIRIASCI AIRVASCI AIRIACAL AIRVACAL AIRBAQAP AIRIAHRE	2.1.6.14	2/1/02	2.1.6.14	2/1/02	AIRS and VIS L1A (Science, Cal, QA and Engineering)
AiL1A_AMSU	AIRAASCI	2.1.6.14	2/1/02	2.1.6.14	2/1/02	AMSU L1A
AiLA_HSB	AIRHASCI	2.1.6.14	2/1/02	2.1.6.14	2/1/02	HSB L1A
AiL1B_AIRS	AIRIBRAD AIRIBQAP AIRBCBS	2.1.6.14	2/1/02	2.1.6.14	2/1/02	AIRS L1B, QA, Browse Subset
AiLB-AMSU	AIRABRAD	2.1.6.14	2/1/02	2.1.6.14	2/1/02	AMSU L1B
AiLB_HSB	AIRBRAD	2.1.6.14	2/1/02	2.1.6.14	2/1/02	HSB L1B
AiLB_VIS	AIRVBRAD AIRVBQAP	2.1.6.14	2/1/02	2.1.6.14	2/1/02	VIS L1B, QA



Science Software Status and Plans

- Status of Post-launch AIRS PGEs (Mission Essential)

Aqua AIRS PGE	Description	Current Version	Delivery Date	Launch Version	Anticipate d Delivery Date	Comment
AiL2	AIRX2RET AIRI2CCF AIRX2SUP AIRX2RBS AIRI2CBS	2.1.6.14	2/1/02	2.1.6.14	2/1/02	Level 2 standard retrieval and cloud cleared products, and browse subsets.
AiL2_RaObs	AIRX2MAT AIRX2LOC	2.1.6.14	2/1/02	2.1.6.14	2/1/02	Level 2 Radiosonde observations match-up products.
AiBR_AIRS	AIRIBDBR	2.1.6.14	2/1/02	2.1.6.14	2/1/02	Daily Browse Summary – L1B AIRS.
AiBR_AMSU	AIRABDBR	2.1.6.14	2/1/02	2.1.6.14	2/1/02	Daily Browse Summary – L1B AMSU.
AiBR_HSB	AIRHBDBR	2.1.6.14	2/1/02	2.1.6.14	2/1/02	Daily Browse Summary – L2 standard retrieval.
AiBr_L2RET	AIRX2ASD AIRX2DBR	2.1.6.14	2/1/02	2.1.6.14	2/1/02	Daily Browse Summary – L2 Could cleared.
AiBr_L2CC	AIRI2DBR	2.1.6.14	2/1/02	2.1.6.14	2/1/02	Daily Browse Summary – L2 Cloud cleared.
AiVISMap1D	AIRVBVID	2.1.6.14	2/1/02	2.1.6.14	2/1/02	Daily VIS Map Summary – Input to L2.
AiVISMapMD	AIRVBVIM	2.1.6.14	2/1/02	2.1.6.14	2/1/02	Multi-Day VegMap product.



Operations Agreements Documentation

GDAAC Agreement With	Document Title	Current Terra Status	Status With Regard to Aqua	Comments
EDOS	Operations Agreement Between EDOS and ECS SDPS	Signed	Updates for Aqua Provided to EDOS for Incorporation	1-Mar
EMOS	Operations Agreement Between GDAAC and EMOS	N/A	Updates for Aqua Provided to EMOS for Incorporation	1-Mar
FDS	Operations Agreement Between GDAAC and FDS	Under Development	Will Need to Incorporate Aqua Issues	1-Mar
DAO	Operations Agreement Between GDAAC and DAO	Under Development	Will Need to Incorporate Aqua Issues	1-Mar
AIRS TLSCF	Operations Agreement Between GDAAC and AIRS TLSCF	N/A	Ready for Signature	1-Mar



AQUA Operations Procedures Documentation

GDAAC Procedures Group	Mission Critical Fraction Complete	Mission Essential Fraction Complete	Completion Date	Comments
CM	>90%	>90%	4/1/02	No Changes Anticipated
User Services	90%	90%	4/1/02	Current procedures are in the process of review and update to include Aqua specifics
Archive Control	90%	90%	4/1/02	Current procedures are in the process of review and update to include Aqua specifics
Data Distribution	90%	90%	4/1/02	Current procedures are in the process of review and update to include Aqua specifics
Ingest	>90%	>90%	4/1/02	Current procedures are in the process of review and update to include Aqua specifics
Prod Monitoring	80%	80%	4/1/02	Current procedures are in the process of review and update to include Aqua specifics
Ops Control	80%	80%	4/1/02	Current procedures are in the process of review and update to include Aqua specifics
Resource Planning	90%	90%	4/1/02	Current procedures are in the process of review and update to include Aqua specifics
Prod Planning	90%	90%	4/1/02	Current procedures are in the process of review and update to include Aqua specifics



Logistics/Security

- Facilities Status (power, cooling, emergency plans)
 - Electrical UPS System has Completed all Scheduled Upgrades
 - Cooling is Satisfactory
- Computer Security
 - Complying with all NASA Policies and Directives
 - Actively Working with Computer Security (NASA and GSFC) in Participation of Scans, Audits, Training, Certifications, and Documentation
 - Network Configuration Upgrade Installed



Data Deletion

- Archive Status
 - There are ~0.9 Pbytes of archive available on the floor
 - ~0.55 Pbytes (550 Tbytes) of Terra data archived at the GES DAAC
 - Additional archive is planned for later this year
 - No problem is foreseen for the next two years, but we must continue to plan carefully
- Data Deletion
 - GES DAAC User Working Group deferred to the expertise and experience of the Science Teams
 - Engage the Science Teams in the development of a data deletion policy
 - Older versions of reprocessed data targeted for removal first
 - Need to determine if this makes sense per dataset
 - How long after most recent product is created should this be done
 - Data deletion policy will need to account for user needs, usage patterns, and special event data


















DAAC Unique Extensions

Current Complement of Terra DUEs Have Been Reviewed for Aqua Compatibility


- DUEs are Now AQUA Compatible
- Many Upgraded DUEs were Used for Monitoring Production Activities During AQUA MOSS-6
- S4PM for Aqua exercised in MOSS-6; Tuning of configurable parameters completed



DAAC Science Operations Status Summary for AIRS

	Today	First Data	First Public Release
GES DAAC Readiness/Operability			
Staffing and Training			
Science Software Integration and Test			
Documentation			
Logistics			

The GES DAAC is ready to manage Aqua AIRS data at launch

-  Ready for Science Operations
-  Ready with Workarounds
-  Not Ready



Major Issues and Workoff Plan

Issue/Concern	Workoff Plan	Workoff Date
Moving major deliveries (e.g., 6A.05) into Ops before launch, based on the numerous problems that were encountered with installation and activation of 6A.04 and Network Configuration Upgrades	GES DAAC will ensure the operations of all critical and essential functionality and performance early and often. The GES DAAC will watchfully track EDC 6a.05 installation progress. In addition, the GES DAAC has initiated considerable effort to expand and document testing at Landover and the GES DAAC. GES DAAC will require all test reports, results, and installation document is received and reviewed. (And there are still no guarantees)	Mid-March
Public Release issue: Need to minimize Level 0 data gaps from EDOS, which impacts GDAAC MODIS and AIRS, and MODAPS processing	Working with EDOS to ensure complete deliveries and expedite ways to receive missing data	1-March
Delivery of duplicate and inconsistent GBAD files from EMOS significantly impacting MODIS and AIRS production	ESDIS working with EMOS to resolve	1 March